



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re Application of:)	
)	
Inventors: Mansfield et al.)	
)	
Serial No.: 10/066,486)	ATTORNEY FILE NO.
)	SLA1120
Filed: January 31, 2002)	
)	Customer No.: 27518
Title: PRIVACY MODE SYSTEM)	
AND METHOD FOR HOME)	Examiner: Agdeppa, Hector
NETWORK TELEPHONES)	
)	Confirmation No.: 3520
)	
)	Art Unit: 2642

Board of Appeals and Interferences
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF TRANSMITTAL LETTER

Enclosed is a copy of an Appeal Brief for the above-mentioned application, responsive to a Final Office Action mailed July 27, 2005. A Notice of Appeal for the above-mentioned application accompanies this paper.

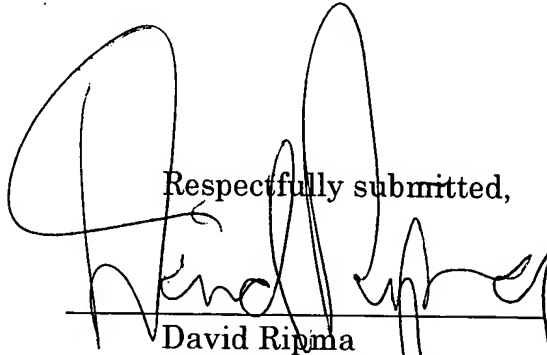
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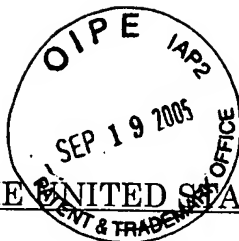
9/15/05

Respectfully submitted,



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BRIEF ON APPEAL

This is an appeal from the rejection by Examiner Hector Agdeppa, Art Unit 2642, of claims 1-2, 4-11, 13-33, 35-36, and 39-54 as set forth in the CLAIMS APPENDIX, all claims in the application.

REAL PARTY IN INTEREST

The real party in interest is Sharp Laboratories of America, Inc., as assignee of the present application by an Assignment in the United States Patent Office on April 11, 2002, with a recordation date of January 31, 2002 at Reel 012576, Frame 0243.

RELATED APPEALS AND INTERFERENCES

None.

STATUS OF THE CLAIMS

Claims 1-2, 4-11, 13-33, 35-36, and 39-54 are in the application.

Claims 1-2, 4-11, 13-33, 35-36, and 39-54 are rejected.

Claims 1-2, 4-11, 13-33, 35-36, and 39-54 are appealed.

STATUS OF AMENDMENTS

Amendments were made to the claims in an Office Action response received at the PTO on May 2, 2005, which was responsive to an Office Action mailed April 1, 2005. These claims amendments have been entered, and no further amendments have been submitted.

SUMMARY OF CLAIMED SUBJECT MATTER

The invention of claim 1 describes a method that selectively applies public and private mode options to endpoints (i.e., phones) in a Home Network on the basis of the external telephone number originating or receiving a call. Examples of these operations are shown in Applicant's Figs. 3 and 4 (Evidence Appendix; Attachment B), and explained in the specification (Evidence Appendix; Attachment A) at page 14, line 6, through page 15, line 24. The Home Network has a plurality of endpoints (endpoints 1 and 2 are shown). Fig. 3 shows a call being received on external telephone number 555-543-0933 that has been bridged to endpoint 1 (i.e., a home office). Since the public mode option has been selected for endpoint 2 (i.e., a kitchen phone), with respect to that phone number, endpoint 2 is allowed to bridge into the existing conversation. This behavior does not appear especially interesting, since it mimics aspects of a conventional POTS system where a plurality of extension phones are parallel-connected in a home.

In Fig. 4, assume that the number 555-543-0933 is primarily intended for use with a home office. In this example, the privacy mode is applied to endpoint 2 for all calls originating from (or received on) this number. This prevents a person using the kitchen phone (endpoint 2) from bridging into an existing call to the home office (endpoint 1). Instead, the user hears a busy tone when they pick up endpoint 2 (if there

is only one external line). Alternately, the gateway provides a dial tone so the user of endpoint 2 can make a call on external line 2.

Claim 23 explains the invention from the perspective of a Home Network system comprising a gateway and endpoint devices. Fig. 1 shows a Home Network gateway 102, which selectively bridges between external telephone numbers, and endpoints 106, 108, 110, and 116 on the basis of external telephone number, as explained above. Here the lines 104a, 104b, and 104c each represent an external line telephone number, see the specification, page 6, line 1, through page 7, line 19.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1-2, 4-11, 13-33, 35-36, and 39-54 are unpatentable under 35 U.S.C. 103(a) with respect to Wahi et al. ("Wahi"; 4,899,372), in view of Kung et al. ("Kung"; US 6,252,952), and further in view of Weinman (2002/0150220).

ARGUMENT

1. The rejection of 1-2, 4-11, 13-33, 35-36, and 39-54 under 35 U.S.C. 103(a) as unpatentable with respect to Wahi et al. (“Wahi”; 4,899,372), in view of Kung et al. (“Kung”; US 6,252,952), and further in view of Weinman (2002/0150220).

In Section 2 of the Office Action claims 1-2, 4-11, 13-33, 35-36, and 39-54 have been rejected under 35 U.S.C. 103(a) as unpatentable with respect to Wahi, in view of Kung, and further in view of Weinman. With respect to claims 1 and 23, the Office Action states that Wahi discloses a lockout system, but acknowledges that Wahi does not disclose a gateway or traffic/control channels. The Office Action further states that Kung teaches the use of various gateway and endpoints that are connected to each other, and that inherently use traffic and control channels. Further, the Office Action states that Weinman describes a phone that is able to selectively control connected external telephone lines, and that it would have been obvious for one of ordinary skill at the time of the invention to combine Wahi’s POTS lockout system, as “Kung et al. would merely provide a more modern environment upon which the teachings of Wahi would be implemented. Moreover, because Kung et al. teaches the ability to interconnect and control standard POTS telephones, nothing that Wahi et al. teaches would interfere with or teach away from anything that Kung et al. teaches.” The Office Action states that it would be obvious to combine Weinman with Wahi and Kung to permit the separate control of external telephone lines.

An invention is unpatentable if the differences between it and the prior art would have been obvious at the time of the invention. As stated in MPEP § 2143, there are three requirements to establish a *prima facie* case of obviousness.

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck* 947 F.2d 488, 20 USPQ2d, 1438 (Fed. Cir. 1991).

Wahi describes a POTS type system where the lines to the central office are connected to telephone extensions (see the upper left hand corner of Fig. 1). Wahi's invention involves the use of blocking circuitry that is enabled through the use of two additional electrical lines (y and b) that are connected to each extension (col. 3, ln. 28-40). When the y/b lines are enabled at one extension phone, all the other phones are blocked from the external telephone line.

Generally, Kung describes an Internet Protocol-based network 120 that can be integrated to communicate with other network types such a POTS 160, ATM 185, and a residential gateway 300, among others (col. 3, ln. 21-33, see Fig. 1), using a collection of gateways

POTS lockout system, and that it would have been obvious to combine Weinman with Wahi and Kung to permit the separate control of external telephone lines. The Office Action also says that, “nothing that Wahi et al. teaches would interfere with or teach away from anything that Kung et al. teaches.” The Applicant respectfully submits that these statements do not support a very compelling motivation to combine the references.

Although a prior art device “may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion of motivation in the references to do so.” *In re Mills*, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990). To establish a *prima facie* case, the Office Action analysis must determine if there is any motivation to modify either Kung’s gateway or Weinman’s bridge in such a manner as to teach the claimed invention. Wahi may provide a motivation to modify either Kung or Weinman, to make obvious a digital lockout system. However, the claimed invention is not simply a lockout system. Alternately stated, even if there is a motivation to combine the Wahi, Kung, and Weinman references, the invention suggested is not the claimed invention.

Considered from the perspective of the second *prima facie* requirement, even if an expert were given the Wahi, Kung, and Weinman inventions as a foundation, there is no reasonable expectation that this expert could derive the claimed invention, since the claimed invention describes a functionality that is not present in any of the references. The affidavit of expert Gary Gaskill is discussed below.

With respect to the third *prima facie* requirement, there are important distinctions between the claimed invention and all the cited prior art references. Although Weinman describes connections between a telephone and a plurality of external lines that are enabled through the use of a bridge, these connections are established by pushing buttons on a phone. Weinman's connections are established by a user on an *ad hoc* basis. Like Wahi, Weinman's system does not permit the bridge to establish connections on the basis of the telephone number receiving a call or the external telephone number originating the call.

Wahi's system permits privacy to be enabled for a particular phone extension, for a particular call. However, Wahi's system does enable the public/privacy mode selections to be based upon the external telephone line (external telephone number) being called, as recited in claims 1 and 23. By independently selecting modes of operation for different external telephone lines (the claimed invention), it is the external line that determines mode selection, not a button on a telephone or an *ad hoc* user action. This is a novel approach to configuring mode selection that is not taught in the prior art. The Applicant respectfully submits that a POTS telephone is incapable of such functionality.

In summary, the combination of references does not teach all the limitations of claims 1 and 23. Claims 1 and 23 recite the limitations of independently selecting privacy/public mode options for external telephone lines, and selectively excluding bridges between an external telephone line and Home Network endpoints in response to the selection

the privacy mode. Wahi shows no selective control over which extensions are disconnected. Therefore, Wahi cannot perform either of these functions. Kung describes only intercom, transfer, and conferencing telephony functions. Kung does not describe the selection of public/privacy modes of operation on the basis of the external telephone line being used. Weinman describes the selective connection of a telephone to various external telephone lines. However, Weinman does not show connections being made in response to the external telephone number engaged in the call.

With respect to claim 1 and 23, the combination of all these references does not teach that privacy/public mode functions can be independently selected on the basis of the external telephone line (number) being used. Regardless of whether it makes sense to combine the references, that combination cannot make the claimed invention obvious since the claimed invention includes at least one feature that is not specifically taught or suggested by any of the references. Therefore, the combination of references neither explicitly describes all the limitations of claims 1 and 23, nor suggests modifications that make these claims obvious. Claims 2, 4-11, 13-22, and 46-48, dependent from claim 1, and claims 24-33, 35-36, 39-45, and 49-54, dependent from claim 23, enjoy the same benefits and the Applicant respectfully requests that the rejections be removed.

To support the Applicant's position, an affidavit has been prepared by Gary Gaskill, enclosed as in the Evidence Appendix as

Attachment F. In his affidavit Mr. Gaskill states that the combination of prior art references does not suggest the limitations recited in the base claims. Mr. Gaskill states that the ability to set privacy/public modes independently for each external telephone line stems from a unique gateway processing method. Unlike conventional access systems, the claimed invention gateway differentiates on the basis of external telephone line and, therefore, on the basis of external telephone number. This permits an endpoint to be configured differently for each external telephone line (telephone number). In turn, uncoupling the endpoint from a particular telephone number enables the claimed privacy/public mode functions.

Section 716.01(a) of the MPEP states that affidavits presented to rebut obviousness rejections must be considered by the Examiner, *Stratoflex, Inc., v. Aeroquip Corp*, 713 F.2d 1530, 1538, 218 USPQ 871, 879 (Fed. Cir. 1983). Further, “(i)f, after evaluating the evidence, the examiner is not convinced that the claimed invention is patentable, the next Office action should include a statement to that effect and identify the reason(s)...” *Demaco Corp. v F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 7 USPQ2d 1222 (Fed. Cir.) However, the Examiner in this case has failed to consider or address any of the points raised by Mr. Gaskill. As an expert in the field, Mr. Gaskill is likely to have the best understanding of all the involved parties, as to how the prior art and claimed invention circuitry operates. As a result, Mr. Gaskill’s are dispositive in the issue of whether any of the prior references actually

describe the claimed public/privacy modes. Further, “some weight ought to be given to a persuasively supported statement of one skilled in the art on what was not obvious to him.” *In re Lindell*, 385 F.2d 453, 456, 155 USPQ, 521, 524 (CCPA 1967).

SUMMARY AND CONCLUSION

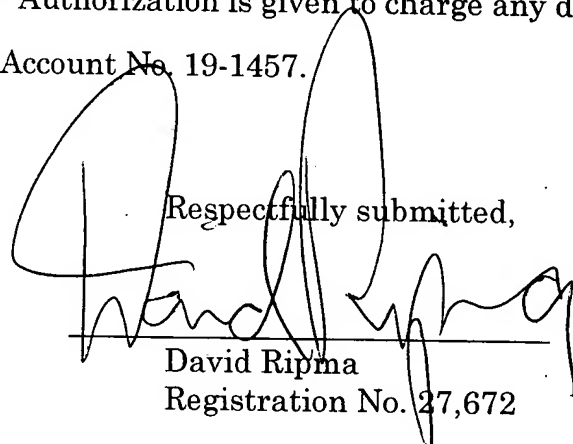
It is submitted that for the reasons pointed out above, the claims in the present application clearly and patentably distinguish over the cited references. Accordingly, the Examiner should be reversed and ordered to pass the case to issue.

Authorization is provide, in the amount of \$500.00, to cover the fee for this Appeal Brief. Authorization is given to charge any deficit or credit any excess to Deposit Account No. 19-1457.

Date:

9/15/05

Respectfully submitted,



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TABLE OF CONTENTS

REAL PARTY IN INTEREST	2
RELATED APPEALS AND INTERFERENCES	2
STATUS OF THE CLAIMS	2
STATUS OF AMENDMENTS	2
SUMMARY OF CLAIMED SUBJECT MATTER	3
GROUND OF REJECTION TO BE REVIEWED ON APPEAL	4
ARGUMENT	5
SUMMARY AND CONCLUSION	13
CLAIMS APPENDIX	15
EVIDENCE APPENDIX	32
ATTACHMENT A (Applicant's Specification)	
ATTACHMENT B (Applicant's Drawings)	
ATTACHMENT C ("Wahi"; US 4,899,372)	
ATTACHMENT D ("Kung"; US 6,252,952)	
ATTACHMENT E (Weinman; US 2002/0150220)	
ATTACHMENT F (affidavit of Gary Gaskill)	

CLAIMS APPENDIX

1. (Previously Presented) In a Home Network telephone system, a method for controlling communications privacy, the method comprising:

transceiving calls on at least one external telephone line, where each external telephone line is associated with a unique telephone number;

supplying privacy and public mode bridging options;

independently selecting private and public modes for each external telephone line;

in response to the selecting the public mode for a first external telephone line, permitting bridges through a gateway, between the first external telephone line and any endpoint; and,

in response to selecting the privacy mode for the first external telephone line, selectively excluding bridges through the gateway, between the first external telephone line and the endpoints.

2. (Previously Presented) The method of claim 1 wherein selectively excluding bridges between the first external telephone line and the endpoints includes exclusively bridging a call between the first external telephone line and a first endpoint.

3. Canceled

4. (Previously Presented) The method of claim 1 wherein permitting bridges between the first external telephone line and any endpoint includes:

from a second endpoint, selecting the first external telephone line; and,

while the call is bridged to the first endpoint, adding a bridge between the first telephone line and the second endpoint.

5. (Previously Presented) The method of claim 1 wherein selecting the public mode for the first external telephone line includes:

while in the public mode, bridging a call between the first telephone line and the first endpoint; and,

adding a bridge between the first external telephone line and a second endpoint; and,

the method further comprising:

toggling to the privacy mode for the first external telephone line; and,

in response to toggling to the privacy mode, dropping the bridge between the first telephone line and the second endpoint.

6. (Previously Presented) The method of claim 1 wherein selecting the public mode for the first external telephone line includes, while in the public mode, bridging a call between the first telephone line, the first endpoint, and a second endpoint; and,

the method further comprising:

selecting the privacy mode for the first external telephone line; and,

in response to selecting the privacy mode, preventing a bridge between the first telephone line and other endpoints in the system.

7. (Previously Presented) The method of claim 1 wherein selecting the privacy mode for the first external telephone line includes:

bridging a call between the first external telephone line and a first endpoint; and,

in response to selecting the privacy mode for the first external telephone line, preventing bridges between the first external telephone line and other endpoints in the system.

8. (Previously Presented) The method of claim 7 wherein selecting the privacy mode for the first external telephone line includes, while in the privacy mode, bridging a call between the first telephone line and the first endpoint; and,

the method further comprising:

toggling to the public mode for the first external telephone line; and,

in response to toggling to the public mode, adding a bridge between the first telephone line and a second endpoint.

9. (Original) The method of claim 7 wherein preventing a bridge between the first telephone line and other endpoints in the system includes:

from a second endpoint, selecting the first external telephone line; and,

while the call is bridged between the first telephone line and the first endpoint, preventing a bridge between the first telephone line and the second endpoint.

10. (Previously Presented) The method of claim 1 wherein transceiving calls on at least one external telephone line includes communicating information in a first format;

the method further comprising:

at a gateway, converting between the first format and a digital Home Network format;

establishing traffic channels between the gateway and the endpoints to communicate information in the Home Network format; and, establishing control channels to control endpoint privacy.

11. (Original) The method of claim 10 wherein establishing a control channel to control endpoint privacy includes:

using the control channels to communicate privacy and public mode selections to the gateway from the endpoints; and,

using the control channels to send mode selection acknowledgements from the gateway to communicating endpoints, in response to making the privacy and public mode selections.

12. Canceled

13. (Previously Presented) The method of claim 11 further comprising:

at the gateway, establishing a default mode flag for the first external telephone line;

wherein using the control channels to communicate privacy and public mode selections from the endpoints to the gateway includes using the control channels to select default mode flags; and,

wherein selectively excluding bridges between the first external telephone line and the endpoints includes using the default mode flags to determine whether a privacy or a public mode has been selected for the first external telephone line.

14. (Previously Presented) The method of claim 13 further comprising:

at the gateway, establishing a permission flag for each external telephone line;

wherein using the control channels to communicate privacy and public mode selections from the endpoints to the gateway includes:

using the control channels to select default mode flags;

checking the permission flag status to determine if the communicating node has permission to change default mode flags; and,

wherein selectively excluding bridges between the first external telephone line and the endpoints includes changing the default mode flag in response to the permission flag status.

15. (Previously Presented) The method of claim 13 further comprising:

at the gateway establishing a toggle flag for each default mode flag;

wherein using the control channels to communicate privacy and public mode selections from the endpoints to the gateway includes:

using the control channels to select toggle flags for a first call bridged to the first external telephone line selected from the group including on-going and subsequent calls; and,

wherein selectively excluding bridges between the first external telephone line and the endpoints includes using the toggle flag to change the default mode flag for the first call involving the first external telephone line.

16. (Previously Presented) The method of claim 15 further comprising:

in response to preventing a bridge between the first external telephone line and a second endpoint, sending a communication from the gateway to the second endpoint selected from the group including a busy signal and a message indicating that a privacy mode call is currently in progress.

17. (Previously Presented) The method of claim 15 further comprising:

in response to preventing a bridge between the first external telephone line and a second endpoint, bridging the second endpoint to an unused external telephone line.

18. (Original) The method of claim 15 further comprising:

following the bridging of a call between the first external telephone line and the first endpoint in the privacy mode, using the control channels to send a transfer command; and,

while the call is in progress, terminating the bridge between the first external telephone line and the first endpoint, and establishing a bridge between the first external telephone line and the second endpoint.

19. (Previously Presented) The method of claim 15 wherein selectively excluding bridges between the first external telephone line and the endpoints includes bridging a call in response to receiving the call on an external telephone line.

20. (Previously Presented) The method of claim 15 wherein selectively excluding bridges between the first external telephone line and the endpoints includes originating the call from an endpoint.

21. (Original) The method of claim 20 wherein originating the call from an endpoint includes selecting an external telephone line from the endpoint.

22. (Original) The method of claim 15 further comprising:

using an input/output (I/O) device, supplying privacy and public default mode selections, permission flag selections, and toggle flag selections to the gateway.

23. (Previously Presented) A Home Network telephone privacy management system comprising:

a gateway having a port for transceiving calls on at least one external telephone line, where each external telephone line is associated with a unique telephone number, a port for receiving public and privacy mode selection commands, independently for each external telephone line, and a port for establishing bridges to the external telephone lines;

a plurality of Home Network endpoints, each endpoint having a user interface to accept mode commands and external telephone line selection commands, each endpoint having a port connected to the gateway for supplying mode and external telephone line selection commands, each endpoint having a port for establishing bridges to external telephone lines through the gateway;

wherein the gateway, in response to the selection of the public mode for a first external telephone line, permits bridges between the first external telephone line and any endpoint; and,

wherein the gateway, in response to the selection of the privacy mode for the first external telephone line, selectively excludes bridges between the first external telephone line and the endpoints.

24. (Previously Presented) The system of claim 23 wherein the gateway exclusively bridges a call between the first external telephone line and a first endpoint in the privacy mode.

25. (Previously Presented) The system of claim 23 wherein the gateway bridges a call between the first external line, a first endpoint, and a second endpoint in the public mode.

26. (Previously Presented) The system of claim 23 wherein the gateway bridges a call between the first external telephone line and a first endpoint, and prevents bridges between the first external telephone line and other endpoints in the system in the privacy mode.

27. (Original) The system of claim 26 wherein the gateway bridges a call between the first external telephone line and the first endpoint in the privacy mode; and,
wherein the gateway permits bridges between the first external telephone line and other endpoints in the system, in response to receiving a public mode toggle command.

28. (Original) The system of claim 26 wherein the gateway bridges a call between the first external telephone line and the first endpoint in the public mode; and,
wherein the gateway adds a bridge between the first telephone line and a second endpoint while the call is bridged to the first endpoint.

29. (Original) The system of claim 23 wherein the gateway bridges a call between a first telephone line and a first endpoint, and adds a bridge between the first external telephone line and a second endpoint; and,

wherein the gateway drops the bridge between the first telephone line and the second endpoint in response to a privacy mode toggle command.

30. (Previously Presented) The system of claim 23 wherein the gateway bridges a call between the first telephone line, a first endpoint, and a second endpoint in the public mode; and,

wherein the gateway prevents a bridge between the first telephone line and other endpoints in the system in response to a privacy mode toggle command.

31. (Previously Presented) The system of claim 23 wherein the gateway bridges a call between the first external telephone line and a first endpoint in the privacy mode;

wherein a second endpoint selects the first external telephone line while the call is bridged between the first telephone line and the first endpoint; and,

wherein the gateway prevents a bridge between the first telephone line and the second endpoint.

32. (Previously Presented) The system of claim 23 wherein the gateway transceives calls on the external telephone lines in a first format, converts between the first format and a digital Home Network format, establishes traffic channels between the gateway and the endpoints to communicate information in the Home Network format, and establishes control channels to manage endpoint privacy.

33. (Original) The system of claim 32 wherein the plurality of endpoints use the control channels to communicate privacy and public mode commands to the gateway; and,
wherein the gateway uses the control channels to send mode selection acknowledgements to the endpoints.

34. Canceled

35. (Previously Presented) The system of claim 33 wherein the gateway receives a privacy mode command for the first external telephone line and exclusively bridges a call to an endpoint originating a call through the first external telephone line.

36. (Previously Presented) The system of claim 33 wherein the gateway receives a privacy mode command for the first external telephone line and exclusively bridges a call to an endpoint receiving a call through the first external telephone line.

37-38. Canceled

39. (Previously Presented) The system of claim 33 wherein a first endpoint selects the privacy mode for the first external telephone line;
wherein the gateway bridges a call between the first external telephone line and the first endpoint;

wherein a second endpoint selects the first external telephone line while the call is bridged between the first telephone line and the first endpoint; and,

wherein the gateway sends a communication to the second endpoint selected from the group including a busy signal and a message indicating that a privacy mode call is currently in progress.

40. (Previously Presented) The system of claim 33 wherein a first endpoint selects the privacy mode for the first external telephone line;

wherein the gateway bridges a call between the first external telephone line and the first endpoint;

wherein a second endpoint selects the first external telephone line while the call is bridged between the first telephone line and the first endpoint; and,

wherein the gateway bridges the second endpoint to an unused external telephone line.

41. (Previously Presented) The system of claim 33 wherein a first endpoint supplies a transfer command to the gateway for the transfer of a privacy mode call to a second endpoint; and,

wherein the gateway, while the call is in progress, terminates the bridge between the first external telephone line and the first endpoint, and establishes a bridge between the first external telephone line and the second endpoint in response to the transfer command.

42. (Previously Presented) The system of claim 33 wherein the system further comprises a gateway flag repository having a default mode flag for each corresponding external telephone line, wherein the flag repository has a port to accept control channel communications for selecting default mode flags and for communications with the gateway; and,

wherein the gateway accesses default mode flags in the flag repository to determine whether a privacy or a public mode has been selected for a corresponding external telephone line.

43. (Original) The system of claim 42 wherein the flag repository further includes a permission flag corresponding to each endpoint; and,

wherein the gateway receives control channel communications from endpoints attempting to change the default mode flag, the gateway checking the corresponding permission flag status to determine whether a communicating endpoint has permission to change the default mode status, and the gateway changing the default mode flags in response to the permission flag values.

44. (Original) The system of claim 43 wherein the flag repository includes toggle flags for each corresponding default mode flag; and,

wherein the gateway receives control channel communications for setting toggle flag values, the gateway checking the toggle values during a first call selected from the group including on-going

and subsequent calls, and overriding the default mode flag for the first call in response to the toggle value.

45. (Original) The system of claim 44 further comprising:

an input/output (I/O) device having a user interface for accepting external telephone line privacy and public selection commands and a port connected to the gateway for selecting flag repository flag values.

46. (Previously Presented) The method of claim 1 further comprising:

independently selecting private and public modes for each Home Network endpoint;

in response to the selecting the public mode for a first endpoint, permitting bridges through the gateway, between a second endpoint and the first external telephone line, when the first endpoint is bridged to the first external telephone line; and,

in response to selecting the privacy mode for the first endpoint, excluding bridges through the gateway, between the second endpoint and the first external telephone line, when the first endpoint is bridged to the first external telephone line.

47. (Previously Presented) The method of claim 46 wherein selecting the privacy mode for the first endpoint includes exclusively bridging a call to an external telephone line through which the first endpoint originates a call.

48. (Previously Presented) The method of claim 46 wherein selecting the privacy mode for the first endpoint includes exclusively bridging a call to an external telephone line from which the first endpoint receives a call.

49. (Previously Presented) The system of claim 23 wherein the gateway receives public and privacy mode selection commands, independently for endpoints;

wherein the gateway, in response to the selection of the public mode for a first endpoint, permits bridges between a second endpoint and the first external telephone line, when the first endpoint is bridged to the first external telephone line; and,

wherein the gateway, in response to selection of the privacy mode for the first endpoint, excludes bridges between the second endpoint and the first external telephone line, when the first endpoint is bridged to the first external telephone line.

50. (Previously Presented) The system of claim 49 wherein the gateway exclusively bridges a call between the first endpoint and the first external telephone line when operating in the privacy mode.

51. (Previously Presented) The system of claim 49 wherein the gateway bridges a call between the first endpoint and the first external telephone line, and prevents bridges between the first external telephone line and other endpoints when operating in the privacy mode.

52. (Previously Presented) The system of claim 49 wherein the gateway transceives calls on the external telephone lines in a first format, converts between the first format and a digital Home Network format, establishes traffic channels between the gateway and the endpoints to communicate information in the Home Network format, and establishes control channels to manage endpoint privacy.

53. (Previously Presented) The system of claim 49 wherein the gateway receives a privacy mode command for the first endpoint and exclusively bridges a call to an external telephone line through which the first endpoint originates a call.

54. (Previously Presented) The system of claim 49 wherein the gateway receives a privacy mode command for the first endpoint and exclusively bridges a call to an external telephone line from which the first endpoint receives a call.

EVIDENCE APPENDIX

ATTACHMENT A

PRIVACY MODE SYSTEM AND METHOD FOR HOME NETWORK TELEPHONE

BACKGROUND OF THE INVENTION

5 1. Field of the Invention

This invention generally relates to Home Network telephony and, more particularly, to a system and method for controlling privacy in a Home Network telephone system.

2. Description of the Related Art

10 In a conventional analog residential telephone system, a user taking a telephone off-hook will join any call currently active on that residential line. In prior art business private branch exchange (PBX) networks having a call manager and distribution system, whenever a new extension goes off-hook, it is connected to the next free external line, and
15 will not join any existing call. However, PBX networks are intended for business use, and typically only have a private mode of operation.

Although Home Network telephone systems have only recently emerged, as yet there appears to be no established process for protecting the privacy of an initial caller, if a second endpoint takes a busy
20 external line off-hook. That is, conventional Home Network systems do not support any kind of privacy mode. The only mode conceived in current Home Network phone systems is the public mode, which mimics some analog telephone line behaviors, although not the change in impedance (volume) that occurs as phones are taken off and on line.

25 It would be advantageous if a Home Network telephone system existed that supported a private, as well as a public mode of operation.

SUMMARY OF THE INVENTION

The present invention proposes a new capability for the Home Network with an architecture called the privacy mode. It includes
5 the mechanisms for managing and selecting either a public mode (allowing new extension phones to join an existing call) or private mode (barring new extension phones from joining a call) in the Home Network system. It should be understood that a Home Network as used herein, applies to other environments besides a home or residence. The present
10 invention Home Network has equal application is small business environments. Specific features of the system include:

1. Support for a call privacy mode in a Home Network system;
2. Ability to assign and manage the default mode on an
15 extension (endpoint) or an external telephone line basis;
3. Ability to assign different modes to different external lines or extensions (endpoints) in a very flexible manner;
4. Ability to change the mode from an endpoint, or bar mode changes from a specific endpoint;
- 20 5. Ability to change the mode for the next call, without altering the default mode; and,
6. Ability to change the mode of a call in progress.

Accordingly, a method is provided for controlling communications privacy in a Home Network telephone system, for use in
25 home and small business environments. The method comprises: using a gateway to send and receive calls on at least one external telephone line;

supplying privacy and public mode bridging options; and, selectively excluding bridges between external telephone lines and a plurality of Home Network endpoints. Typically, the endpoints are telephones, either cordless or corded, fax machines, or computers.

5 In response to the privacy mode being selected, the gateway bridges a call between a first external telephone line and a first endpoint, and prevents bridges between the first external telephone line and other endpoints in the system. Alternately, when the public mode is selected, the gateway bridges a call between the first external telephone line and
10 the first endpoint; and permits bridges between the first external telephone line and other endpoints in the system. That is, while the call is bridged to the first endpoint, a bridge is added between the first telephone line and the second endpoint.

 The privacy and public mode bridging options are selected
15 with respect to nodes. A node can be an external telephone line or an endpoint. That is, a privacy or public mode of operation can be selected for a first external telephone line, whether calls are received or originated through the Home Network telephone system. Likewise, a privacy or public mode of operation can be selected for a particular endpoint,
20 regardless of whether the endpoint receives or originates the call.

 Additional details of the above-mentioned method, and a Home Network privacy system are described in greater detail below.

BRIEF DESCRIPTION OF THE DRAWINGS

25 Fig. 1 is a schematic block diagram of the present invention Home Network telephone system for managing privacy.

Fig. 2 is a schematic block diagram illustrating the gateway of Fig. 1 in greater detail.

Fig. 3 is a diagram illustrating the present invention system for bridging calls in the public mode of operation.

5 Fig. 4 is a diagram illustrating the present invention system for bridging calls in the privacy mode of operation.

Fig. 5 illustrates the process of changing the privacy/public mode from an endpoint.

10 Fig. 6 illustrates the process of changing the privacy/public mode for a subsequent call, from an endpoint.

Fig. 7 is a diagram illustrating the process of toggling the privacy/public mode, during a call, from an endpoint.

15 Figs. 8a and 8b are flowcharts illustrating the present invention method for controlling communications privacy in a Home Network telephone system.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

20 Fig. 1 is a schematic block diagram of the present invention Home Network telephone system for managing privacy. As explained above, the use of the label "home" should not be taken to imply that the present invention system is limited to just residential applications. The delivery of broadband derived telephone services to the home, small office or small home (SOHO) and small and medium enterprises (SME) are
25 anticipated using voice over broadband protocols such as voice over DSL (VoDSL), voice over cable modem (VoCM), voice over ATM (VoATM), voice

over Ethernet, voice over Internet protocol (VoIP), fixed wireless access (FWA), and fibre through the home (FTTH) that are generally referred to herein as voice over broadband (VoBB). For such a system 100 inside the customer premises, derived voice service can be distributed to a number of
5 telephone products, using currently existing hardwired phonelines, Ethernet or LAN networks, or even wireless technologies. A broadband gateway (GW) 102 acts as a bridge and switch between external voice lines and internal extensions.

The Home Network system 100 (for use in residential,
10 SOHO, or business environments) supports digital voice telephony, multiple incoming lines (digital, analog or a combination thereof), multiple extensions and the capability of bridging two or more extensions onto a single call. The voice service arrives from outside the network using a VoBB, integrated services digital network (ISDN), or plain old
15 telephone service (POTS) on line 104 and terminates at a broadband gateway (GW) 102. From the GW 102, the voice service is distributed inside to Home Network telephony products 106-110 (fax, phone, videophone, modem, wireless devices, hardwired devices, or multifunctional peripherals (MFPs)), that are generally referred to herein
20 as endpoints. Although the voice over Home Network (VoHN) protocol described in the present invention system 100 is a modification and extension of voice over home phoneline network alliances (VoHPNA) protocol, the invention is equally applicable to any VoHN protocol. The GW 102 performs the necessary bridging and switching of telephony audio
25 from external lines to the endpoints 106-110.

Alternately stated, the Home Network telephone system 100 comprises a gateway 102 having a port on line 104 for transceiving calls on at least one external telephone line, and a port on line 112 for selectively establishing bridges to the external telephone lines in response to privacy and public modes. It should be understood that line 104 can represent a plurality of external telephone lines. To that purpose, lines 104a, 104b, and 104c are shown. However, the system 100 is not limited to any particular number of lines. Each endpoint has a user interface to accept mode commands and external telephone line selection commands. The user interface can be a keypad, mouse, touchscreen, an audio microphone/speaker combination to support voice-activated commands, or other unnamed input/output devices. Each endpoint 106-110 has a port connected to the gateway on line 112 for supplying mode and external telephone line selection commands. Typically, the same endpoint port and line are used for establishing bridges to external telephone lines 104 through the gateway 102. Although three endpoints are depicted, it should be understood that the system 100 is not limited to any particular number of endpoints. In some aspects of the system 100, an input/output (I/O) device 116, here shown as a personal computer (PC), is also configured as an endpoint.

As an example of the public mode of operation, the gateway 102 bridges a call between the first external telephone line 104a and the first endpoint 106. Then, the gateway 102 adds a bridge between the first telephone line 104a and the second endpoint 108 while the call is bridged to the first endpoint 106.

In one aspect of the system, the gateway 102 exclusively bridges a call between a first external telephone line 104a and a first endpoint 106 in the privacy mode. For example, the gateway 102 bridges a call between the first external telephone line 104a and the first endpoint
5 106, but prevents bridges between the first external telephone line 104a and other endpoints (108-110) in the system 100.

The system also supports mode toggling during an on-going call. For example, the gateway bridges a call between the first external telephone line 104a and the first endpoint 106 in the privacy mode. Then,
10 in response to receiving a public mode toggle command, the gateway 102 permits bridges between the first external telephone line 104a and other endpoints (108-110) in the system.

In another example, the gateway 102 bridges a call between the first external telephone line 104a and the first endpoint 106 in the
15 privacy mode. The second endpoint 108 selects the first external telephone line 104a while the call is bridged between the first telephone line 104a and the first endpoint 106. However, the gateway 102 prevents a bridge between the first telephone line 104a and the second endpoint 108.

20 Two variations exist in switching from the public to private mode while a call is in progress. For example, the gateway 102 bridges a call between the first telephone line 104a and a first endpoint 106, and adds a bridge between the first external telephone line 104a and the second endpoint 108, while in the public mode. In response to a privacy
25 mode toggle command, the gateway 102 drops the bridge between the first telephone line 104a and the second endpoint 108. Alternately, the

gateway 102 bridges a call between the first telephone line 104a, the first endpoint 106, and the second endpoint 108 in the public mode. Then, the gateway 102 prevents a bridge between the first telephone line 104a and other endpoints (110) in the system 100 in response to a privacy mode
5 toggle command. That is, no additional endpoints can be added in, but none of the endpoints currently engaged in the call are dropped.

Fig. 2 is a schematic block diagram illustrating the gateway 102 of Fig. 1 in greater detail. The gateway transceives calls on the external telephone lines in a first format. The first format can be a VoBB,
10 ISDN, POTS, or any other format recognized by the gateway 102. The gateway 102 converts between the first format and a digital Home Network format using the VoBB client 200 and Home Network (voice capable) modem 202. The gateway establishes traffic channels 112a between the gateway and the endpoints (see Fig. 1) to communicate
15 information in the Home Network format, and establishes control channels 112b for control messages that include the management of endpoint privacy. Other functions, outside the scope of the present invention, may also be controlled by the control channel and the control messages.

20 The plurality of endpoints use the control channels 112b to communicate control messages that include privacy and public mode commands to the gateway 102, and the gateway 102 uses the control channels 112b to send mode selection acknowledgements to the endpoints. More specifically, the gateway 102 receives privacy and public mode
25 bridging commands with respect to nodes. The nodes, or communication nodes are either endpoints or external telephone lines. That is, a public or

private mode of operation can be selected with respect to the external telephone line involved in the call. For example, the gateway 102 receives a privacy mode command for the first external telephone line 104a and exclusively bridges a call to an endpoint originating a call through the first external telephone line 104a. Likewise, the gateway 102 receives a privacy mode command for the first external telephone line 104a and exclusively bridges a call to an endpoint receiving a call through the first external telephone line 104a.

A public or private mode of operation can be selected with respect to the endpoint involved in the call. For example, the gateway 102 receives a privacy mode command for the first endpoint and exclusively bridges a call to an external telephone line through which the first endpoint originates a call. Likewise, the gateway 102 receives a privacy mode command for the first endpoint and exclusively bridges a call to an external telephone line from which the first endpoint receives a call.

In one aspect of the system, the public and privacy modes are only applied to the external telephone lines. In an alternate aspect of the system, the public and privacy modes of operation are applied only to the endpoints. In some aspects of the system, the mode selection can be made with respect to both kinds of modes. However, conflicts can occur with respect to mode selection. The resolution of such conflicts is discussed in more detail below.

The gateway includes a flag repository 204. The flag repository 204 has a default mode flag for each corresponding node. The flag repository 204 has a port on line 206 to accept control channel communications for the selection default mode flags and for

associated with IP station 200 (see Fig. 2). Fig. 3 describes a residential gateway 300, which is connected to customer premise equipment (CPE) 102 such as televisions, computers, and telephones (col. 3, ln. 34-50). Fig. 3 supports an explanation of the residential gateway 300. Residential gateway 300 couples to general network 1 (of Fig. 1) through a transceiver 302. Kung describes an intercom module (IM) 344 associated with the residential gateway that permits the CPE telephones to be used as intercoms, and a controller 306 that determines intercom paths (col. 18, ln. 56-67). The IM can also perform telephony services such as extension transfer, conferencing, and caller ID (col. 19, ln. 18-20). However, Kung provides no details as to how these functions are implemented.

Generally, Weinman describes an invention that permits the selective connection of a telephone to multiple external telephone lines (Abstract). This functionality is enabled through the use of a bridge 442, which is first introduced in para. [0023]. Details of a bridge 520 are presented in [0025], Fig. 5. Here, Weinman explains that the bridge 520 may selectively connect user 501 to external telephone line users 502-504. [0026], Fig. 6, describes some scenarios where the bridge is able to selectively connect user 501 to various external telephone lines (502-504).

With respect to the first *prima facie* requirement to support a case for obviousness, the Applicant respectfully submits that there is no evidence to support a motivation to combine POTS and gateway telephone references in a manner that suggests the claimed invention limitations. The Office Action merely states that it Kung is a modern update of Wahi's

communications with the gateway. As depicted, the gateway communications are conducted with the modem 202, which is assumed to have the capability of operating the various traffic channels in either the privacy or public modes of operation. Alternately, the control is performed
5 by other circuits in the gateway 102, not shown. The gateway 102 accesses default mode flags in the flag repository to determine whether a privacy or a public mode has been selected for a corresponding node.

For example, a "public" default flag is shown for the first external telephone line (1st X line). When receiving a call on the first
10 external telephone line, or when an endpoint originates a call and selects the first external line, the gateway 102 accesses the flag repository 204 to determine the first external telephone line default flag status (value). Since the default flag status is set to "public", the call is conducted in the public mode as described above. This example assumes that the
15 privacy/public mode flags are set in reference to the external telephone line used.

In another example, a call is either received or originated for the first endpoint (1st EP). The gateway 102 checks the default flag status for the first endpoint. Since the default flag status is set to "privacy", the
20 privacy mode of operation is used for the call. This example assumes that the default flags are set in reference to the endpoint involved in the call.

Although both external telephone lines and endpoints are depicted as nodes in the flag repository 204 for convenience, it is not necessary that public and privacy modes of operation be established for all
25 nodes simultaneously due to the inevitable conflicts that would exist between the external telephone lines and the endpoints. Using the

examples above, for a call originated by the first endpoint using the first external telephone line, the gateway would access both "privacy" and "public" status flags. However, conflicts can be resolved by establishing a node priority list, or by selecting the privacy (public) mode in the event of
5 a conflict between nodes.

The flag repository 204 further includes a permission flag corresponding to each endpoint. The gateway 102 can receive control channel communication from endpoints attempting the change the default mode flag. For example, if the first endpoint attempts the change its
10 default flag from "privacy" to "public". The gateway 102 checks the corresponding permission flag status to determine whether a communicating node has permission to change the default mode status. To continue the example, the gateway accesses the flag repository 204 to determine the permission flag status. If the permission flag status is
15 "yes", the first endpoint has permission to change default flags. The gateway 102 then changes the default mode flags in response to the permission flag values.

In some aspects of the system, a "yes" permission flag only gives the endpoint permission to change its own default status flag. In
20 other aspects of the system, the "yes" permission flag gives that endpoint permission to change the default flag for any node in the system.

The flag repository 204 includes toggle flags for each corresponding default mode flag. The gateway 102 receives control channel communications for setting toggle flag values. The gateway 102
25 checks the toggle values for an on-going (currently occurring call) or a subsequent (next occurring) call, and overrides the default mode flag in

response to the toggle value. For example, and as depicted, the toggle flag is set to "yes" for the first endpoint. During an on-going, already established call, either to or from the first endpoint, the gateway accesses the flag repository 204, determines that the toggle value is "yes", and
5 overrides the default flag privacy status for that call only. Any call subsequent to that call will revert to the default flag value (unless the toggle flag is reset to "yes"). In some aspects of the invention, the gateway must first check the permission flag before an endpoint is allowed to set a toggle flag to "yes". The toggle operation works equivalently for
10 subsequent calls.

Returning to Fig. 1, options exist for the treatment of an endpoint that is not permitted to use an external telephone line, due to an ongoing privacy mode call. For example, the first endpoint 106 selects the privacy mode and the gateway 102 bridges a call between the first
15 external telephone line 104a and the first endpoint 106. The second endpoint 108 selects the first external telephone line 104a while the call is bridged between the first telephone line 104a and the first endpoint 106. Then, the gateway sends communication, via either a traffic or control channel, to the second endpoint 108. The communication can be a busy
20 signal or a message indicating that a privacy mode call is currently in progress. Alternately, the gateway 102 bridges the second endpoint 108 to an unused external telephone line, external telephone line 104b for example.

A call transfer mechanism exists for transferring a call when
25 operating in the privacy mode. These transfer commands can be made via the endpoint user interfaces. For example, while engaged a privacy mode

call, the first endpoint 106 supplies a transfer command to the gateway 102 for transfer of the call to the second endpoint 108. The gateway 102, while the call is in progress, terminates the bridge between the first external telephone line 104a and the first endpoint 106, and establishes a
5 bridge between the first external telephone line 104a and the second endpoint 108 in response to the transfer command.

The system further comprising an input/output (I/O) device 116 having a user interface for accepting external telephone line privacy and public selection commands and a port on line 112 connected to the
10 gateway 102 for selecting flag repository flag values. The I/O device 116 is typically a personal computer or a browser interface. The user interface is typically a keyboard and screen display, although communication could be passed in another format, such as an audio format. The I/O device 116 provides a convenient means of making flag changes in the flag repository,
15 so that the more limited interface capabilities of the endpoints need not be relied upon. The I/O device 116 can also be used for security, so that flag changes are only made using the I/O device 116, which may in turn, have security protocols that restrict access to a limited group of users. In some aspects of the invention, I/O device 116 may also be an endpoint.

20 **Functional Description of the System**

The invention makes use of control channel (out-of-band) messaging with the switching and bridging capabilities of gateway. The present invention system requires extensions to the VoHN protocols to support new out-of-band messages. In general, there may be an arbitrary
25 configuration defining which external telephone lines can be used by each endpoint. This configuration may be different for incoming and outgoing

use of the lines. Each endpoint can be identified as capable of connecting to a particular set of external telephone lines for incoming calls and for outgoing calls. In the default case, all lines can be accessed by all extensions.

5 **Non-Private (Public) Mode Operation**

The present invention non-private, or public mode of operation is similar to the case of legacy analog POTS. With legacy POTS, if there is a call in progress on a particular external line and another endpoint connected to that line goes off-hook, the second endpoint will join
10 the existing call and be able to hear the conversation.

Fig. 3 is a diagram illustrating the present invention system for bridging calls in the public mode of operation. In the digital Home Network scenario, when a second endpoint goes off-hook on an external line where a call already exists, the off-hook message from the endpoint to
15 the GW results in the GW physically bridging the new extension into the original call, effectively creating a three-way call. This process mimics some of the behavior of analog POTS.

Here, endpoint 1 has an existing call on external line 1. Endpoint 2 is also mapped to use line 1, or has selected external line 1. In
20 some aspects of the system an endpoint may be mapped to multiple lines and will either select a line, or default to an available line. When endpoint 2 is taken off-hook, a control channel message is sent to the GW. This results in the GW establishing an audio path (traffic channel) to the endpoint 2 and bridging it into the existing call, which is now a three
25 party call. All three members can participate in the three-way call. Another behavior can be implemented, where endpoint 2 is warned that a

call is in progress on line 1. The user would be asked to confirm whether or not another line should be selected.

Private Mode Operation

This present invention system adds the use of a privacy
5 mode, in addition to the public mode, that prevents another endpoint from joining an existing call. To support the privacy mode, the GW stores a default flag for every endpoint and/or external line, also referred to as nodes, in the network (see Fig. 2). This default flag indicates whether
10 calls involving this node are in either privacy mode, or non-private (public) mode. Privacy can be selected for either the endpoint or the external telephone line.

Fig. 4 is a diagram illustrating the present invention system for bridging calls in the privacy mode of operation. Using a similar scenario as mentioned above in the description of Fig. 3, the GW first
15 determines that the call involving endpoint 1 is in the privacy mode. Here, the same process is followed as the last example, up to the off-hook message. However, since the GW knows that endpoint 2 is mapped to external line 1, which is in a call involving a endpoint set to privacy mode, the GW will not bridge endpoint 2 into the existing call. Instead, two
20 possible alternative outcomes can happen:

The audio path is established to the GW, but the GW simply returns a fast busy signal to Phone 2; or,

The audio path is established, and the GW connects the user to an alternative external line, e.g. external line 2. Endpoint 2 receives
25 dial tone and can make an out going call. The second option will only occur if the GW is configured such that endpoint 2 is allowed to use

external line 2. (e.g. the GW shows that endpoint 2 uses external line 1 as first priority and external line 2 as second priority). Note: If an existing call already had more than one party involved, the mode of the call (privacy or public) would be determined by the private/public mode of the first endpoint participating in the call. Alternately, as mentioned above in the description of Fig. 2, the privacy/public mode determinations are made with respect to the external telephone line involved in the call, not the endpoint(s). As another alternative, the initial mode of the call is determined by the endpoint mode or external line mode, and this initial mode setting can be modified by any endpoint that has permission to toggle the mode.

Management of Private Mode

As mentioned above in the description of Fig. 2, the GW, and more particularly the flag repository, stores three flags for every endpoint in the system. The default flag indicates whether the endpoint's default mode is currently set to public mode or privacy mode. If the privacy mode is set for a first participating endpoint, the GW cannot bridge any other endpoints into a call with this endpoint. In the public mode, the GW can bridge other endpoints into a call for which this endpoint is the first participating internal endpoint. When privacy and public mode decisions are made with respect to the external telephone line, decisions are made with respect to the external telephone line, not with respect to the endpoints bridged into the call.

The permission flag indicates whether the endpoint is able to change the privacy mode. The toggle flag indicates if the current/next call for this node (either endpoint or external telephone line) is to be in a

different mode than the default mode. This flag is always cleared after a call is terminated.

Modification of Privacy/Public Modes

The GW can be accessed from an I/O device, such as a PC on the Home Network. For example, the gateway may have an embedded web server that can be browsed from a PC in the Home Network, for configuration purposes. Using this interface and a suitable PC on the network, the user can change the configuration of all applicable flags for each node. A password may be required to access the flag repository. It may not be useful, however, to establish permission flags for the external telephone line nodes. It may be more practical to access the toggle flags from the individual endpoints, as opposed to changing those flags from the I/O device.

Modification of Privacy/Public Mode from Endpoint

The user interface (UI) of the endpoint is able to control at least some aspects of mode setting. In all cases, an endpoint can only change a flag status if the permission flag at the GW indicates that this particular endpoint can change the privacy mode. If not, the GW ignores any requests for mode changes from the endpoint.

The following procedures can be initiated from the endpoint's UI, assuming the endpoint has permission to do so:

- 1) Changing default mode;
- 2) Making the next call private (or public); or,
- 3) Toggling the mode during an existing call.

Fig. 5 illustrates the process of changing the privacy/public mode from an endpoint. The user changes the privacy mode using the

endpoint's UI. An out-of-band (control channel) message is sent to the GW indicating a change in mode, with the value that it should be set to. The GW changes the mode (unless the endpoint does not have permission, in which case no action is taken). The GW returns an acknowledgement
5 that shows the current privacy mode that is set.

Fig. 6 illustrates the process of changing the privacy/public mode for a subsequent (next) call, from an endpoint. The user selects toggle private (or toggle public) from the endpoint's UI. Note, the endpoint need not necessarily be "aware" of the current default mode, and
10 may offer only to change the call to the other mode (i.e. if current mode is public, only "toggle privacy" can be selected since "toggle public" is meaningless in this context). An out-of-band (control channel) message is sent to the GW indicating that the subsequent call on this endpoint should be in the non-default mode. If the endpoint is not allowed to change
15 privacy mode, the GW does nothing. A notice may also be sent that the request was refused. Otherwise, the GW sets the toggle flag for this endpoint and will treat the next call using the non-default mode. It does not change the default mode flag. The GW acknowledges the endpoint, indicating the on-going call private (or next call public) mode is set.

20 Fig. 7 is a diagram illustrating the process of toggling the current privacy/public mode, during a call, from an endpoint. There is a call in progress in private (public) mode. The user wants to change the mode to public (private) and selects this using the endpoint UI. An out-of-band (control channel) message is sent to the GW for toggling the mode of
25 the current (on-going) call. If the endpoint is not permitted to change the default mode, no action is taken. A notice may also be sent that the

request was refused. Otherwise, the GW changes the mode for this call only and sets the toggle flag to indicate this has been done. The default setting is not changed. The GW acknowledges the mode change. If the change was from a private call to public, now other endpoints will be
5 bridged into the call by the GW. If the change was from public to private mode, other extensions can no longer be bridged into the call. In addition, if there was already another extension bridged into the call, it may be dropped from the three-party bridged call by the GW. In this case, the GW could send to the dropped extension either: (1) "fast busy" tones; (2)
10 dial tone for another outside line; (3) or a pre-recorded message that indicates the call originator has made the call private.

Figs. 8a and 8b are flowcharts illustrating the present invention method for controlling communications privacy in a Home Network telephone system. Although the method is depicted as a
15 sequence of steps for clarity, no order should be inferred from the numbering unless explicitly stated. The method begins at Step 800. Step 802 transceives calls on at least one external telephone line. Step 804 supplies privacy and public mode bridging options. Supplying privacy and public mode bridging options in Step 804 includes supplying privacy and
20 public mode bridging options with respect to nodes, which are either endpoints or external telephone lines nodes. Step 806 selectively excludes bridges between external telephone lines and a plurality of Home Network endpoints.

Selectively excluding bridges between external telephone
25 lines and a plurality of Home Network endpoints in Step 806 includes exclusively bridging a call between a first external telephone line and a

first endpoint from among the plurality of endpoints. Selectively excluding bridges between external telephone lines and a plurality of Home Network endpoints can also include bridging a call between a first external line and a first endpoint, and adding a bridge between the first
5 external telephone line and an additional endpoint.

In some aspects, Step 805 selects the mode, for example a public mode. Then, selectively excluding bridges between external telephone lines and a plurality of Home Network endpoints in Step 806 includes substeps. Step 806a bridges a call between the first external
10 telephone line (1st X line) and the first endpoint (1st EP). Step 806b, in response to the selection of the public mode, permits bridges between the first external telephone line and other endpoints in the system.

Permitting bridges between the first external telephone line and other endpoints in the system in Step 806b includes substeps. Step 806b1, from
15 a second endpoint, selects the first external telephone line. Step 806b2, while the call is bridged to the first endpoint, adds a bridge between the first telephone line and the second endpoint.

The method also supports mode toggling during an on-going call. Selectively excluding bridges between external telephone lines and a
20 plurality of Home Network endpoints in Step 806 includes, while in the public mode, bridging a call between the first telephone line and the first endpoint, and adding a bridge between the first external telephone line and a second endpoint. Then, Step 808 toggles. In this case, the toggle occurs from the public to the privacy mode. Step 810a, in response to
25 toggling to the privacy mode, drops the bridge between the first telephone line and the second endpoint.

In some aspects of the method, a further step, Step 805 selects the mode, for example a privacy mode. Selectively excluding bridges between external telephone lines and a plurality of Home Network endpoints in Step 806 includes substeps. Step 806c bridges a call between
5 a first external telephone line and a first endpoint. Step 806d, in response to selecting the privacy mode, prevents bridges between the first external telephone line and other endpoints in the system.

In some aspects, preventing a bridge between the first telephone line and other endpoints in the system in Step 806d includes
10 substeps. Step 806d1, from a second endpoint, selects the first external telephone line. Step 806d2, while the call is bridged between the first telephone line and the first endpoint, prevents a bridge between the first telephone line and the second endpoint.

With respect to toggling, selectively excluding bridges
15 between external telephone lines and a plurality of Home Network endpoints in Step 806 includes, while in the privacy mode, bridging a call between the first telephone line and the first endpoint. Then, Step 808 toggles to the public mode. Step 810b, in response to toggling to the public mode, adds a bridge between the first telephone line and the second
20 endpoint. Alternately, Step 810c, in response to selecting the privacy mode, prevents additional bridges between the first telephone line and other endpoints in the system.

In some aspects of the method, transceiving calls on at least one external telephone line in Step 802 includes communicating
25 information in a first format, as explained earlier. The method then includes further steps. Step 803a, at a gateway, converts between the

first format and a digital Home Network format. Step 803b establishes traffic channels between the gateway and the endpoints to communicate information in the Home Network format. Step 803c establishes control channels to control or manage endpoint privacy. In some aspects a
5 further step, Step 803d uses an input/out (I/O) device to supply privacy and public default mode selections, permission flag selections, and toggle flag selections to the gateway.

Establishing a control channel to control endpoint privacy in Step 803c includes substeps. Step 803c1 uses the control channels to
10 communicate privacy and public mode selections to the gateway from the endpoints. Step 803c2 uses the control channels to send mode selection acknowledgements from the gateway to communicating endpoints, in response to making the privacy and public mode selections.

In some aspects of the invention a further step, Step 801a
15 establishes a default mode flag for a first node at the gateway. Using the control channels to communicate privacy and public mode selections from the endpoints to the gateway in Step 803c2 includes using the control channels to select default mode flags. Then, selectively excluding bridges between external telephone lines and a plurality of Home Network
20 endpoints in Step 806 includes using the default mode flags to determine whether a privacy or a public mode has been selected for the first node.

In some aspects a further step, Step 801b establishes a permission flag for each node at the gateway. Using the control channels to communicate privacy and public mode selections from the endpoints to
25 the gateway in Step 803c2 includes substeps. Step 803c2a uses the control channels to select default mode flags. Step 803c2b checks the

permission flag status to determine if the communicating node has permission to change default mode flags. Then, selectively excluding bridges between external telephone lines and a plurality of Home Network endpoints in Step 806 includes changing the default mode flag in response to the permission flag status.

In some aspects a further step, Step 801c establishes a toggle flag for each default mode flag at the gateway. Using the control channels to communicate privacy and public mode selections from the endpoints to the gateway in Step 803c2 includes additional substeps. Step 803c2c uses the control channels to select toggle flags for a first call bridged to the first node. The first call is either an on-going or a subsequent call. Then, selectively excluding bridges between external telephone lines and a plurality of Home Network endpoints in Step 806 includes using the toggle flag to change the default mode flag for the first call involving the first node.

Some aspects of the method include a further step. Step 812, in response to preventing a bridge between the first external telephone line and the second endpoint, sends a communication from the gateway to the second endpoint, using either the traffic channel or the control channel, such as a busy signal or a message indicating that a privacy mode call is currently in progress. Alternately, Step 812 bridges the second endpoint to an unused external telephone line, in response to preventing a bridge between the first external telephone line and the second endpoint.

In some aspects a further step, Step 814, following the bridging of a call between the first external telephone line and the first

endpoint in the privacy mode, uses the control channels to send a transfer command. Step 816, while the call is in progress, terminates the bridge between the first external telephone line and the first endpoint, and establishes a bridge between the first external telephone line and the
5 second endpoint.

In some aspects, selectively excluding bridges between external telephone lines and a plurality of Home Network endpoints in Step 806 includes bridging a call in response to receiving the call from an external telephone line. Alternately, selectively excluding bridges
10 between external telephone lines and a plurality of Home Network endpoints in Step 806 includes originating the call from an endpoint. Likewise, originating the call from the endpoint includes selecting an external telephone line from the endpoint.

A system and method for private Home Network
15 communications have been provided. However, the present invention is also applicable to any system with similar architecture, regardless of the broadband or Home Network technology used. It is applicable to many kinds of communications product, including video telephony systems. As mentioned above, privacy modes can also be assigned on the basis of
20 external telephone lines, rather than the first involved endpoint. It is also possible for a system to support both types of privacy mode configuration (i.e. Line based and endpoint based). In this case, one of the two conflicting nodes is given priority over the other. Alternatively, both the endpoint and the external telephone line are automatically set to privacy
25 mode in the event of a conflict. Other variations and embodiments will occur to those skilled in the art.

ATTACHMENT B

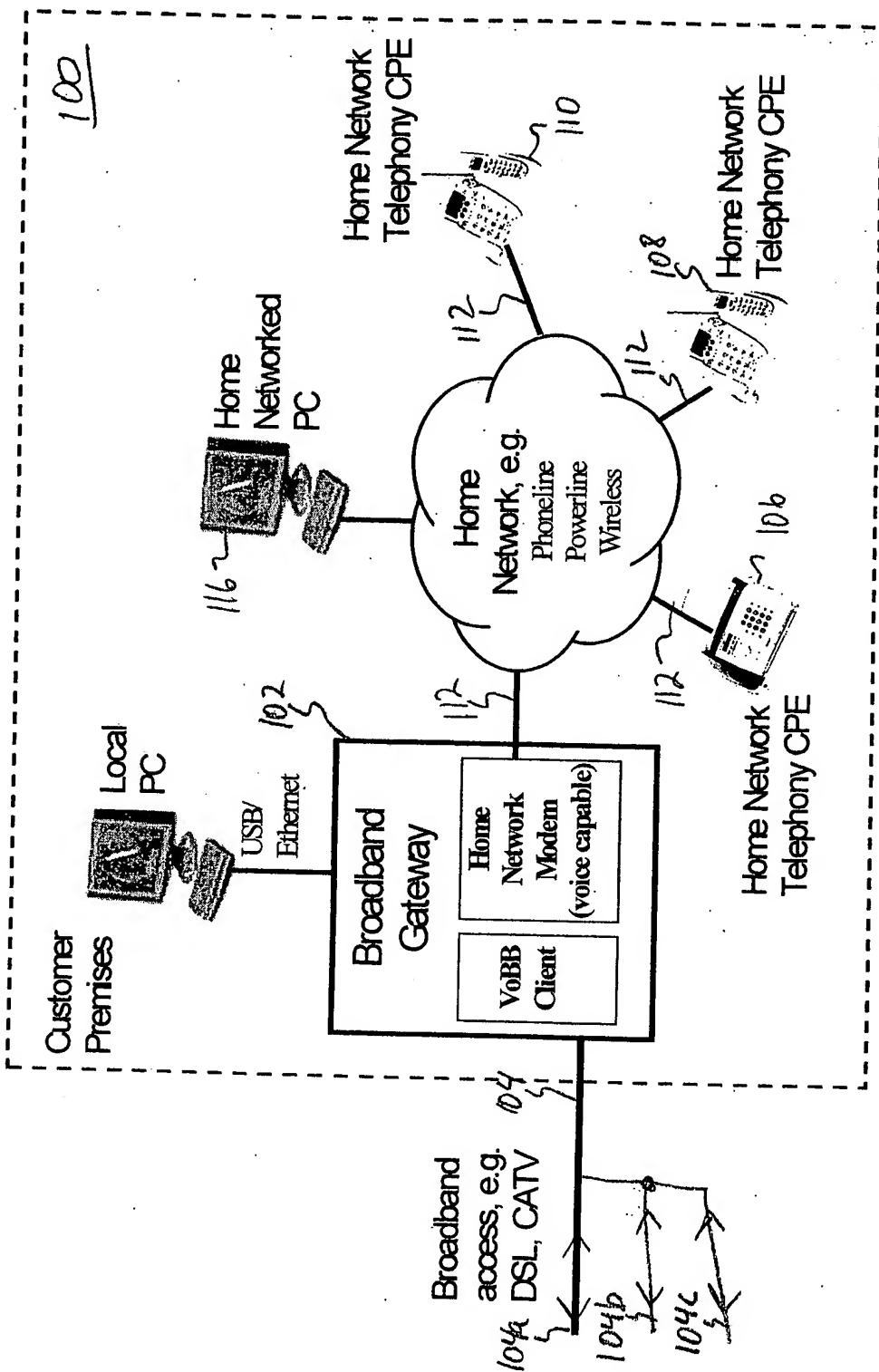


Fig. 1

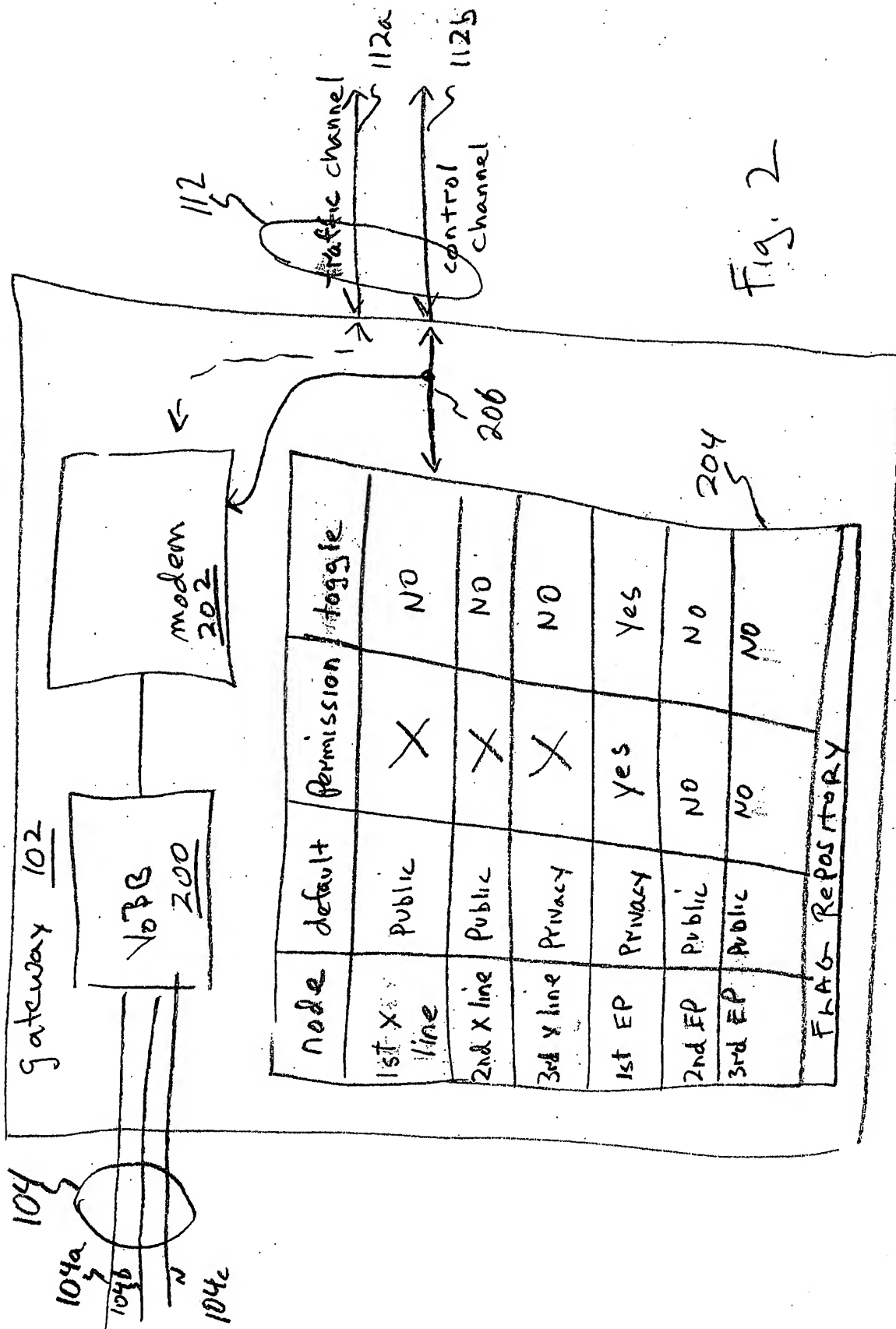
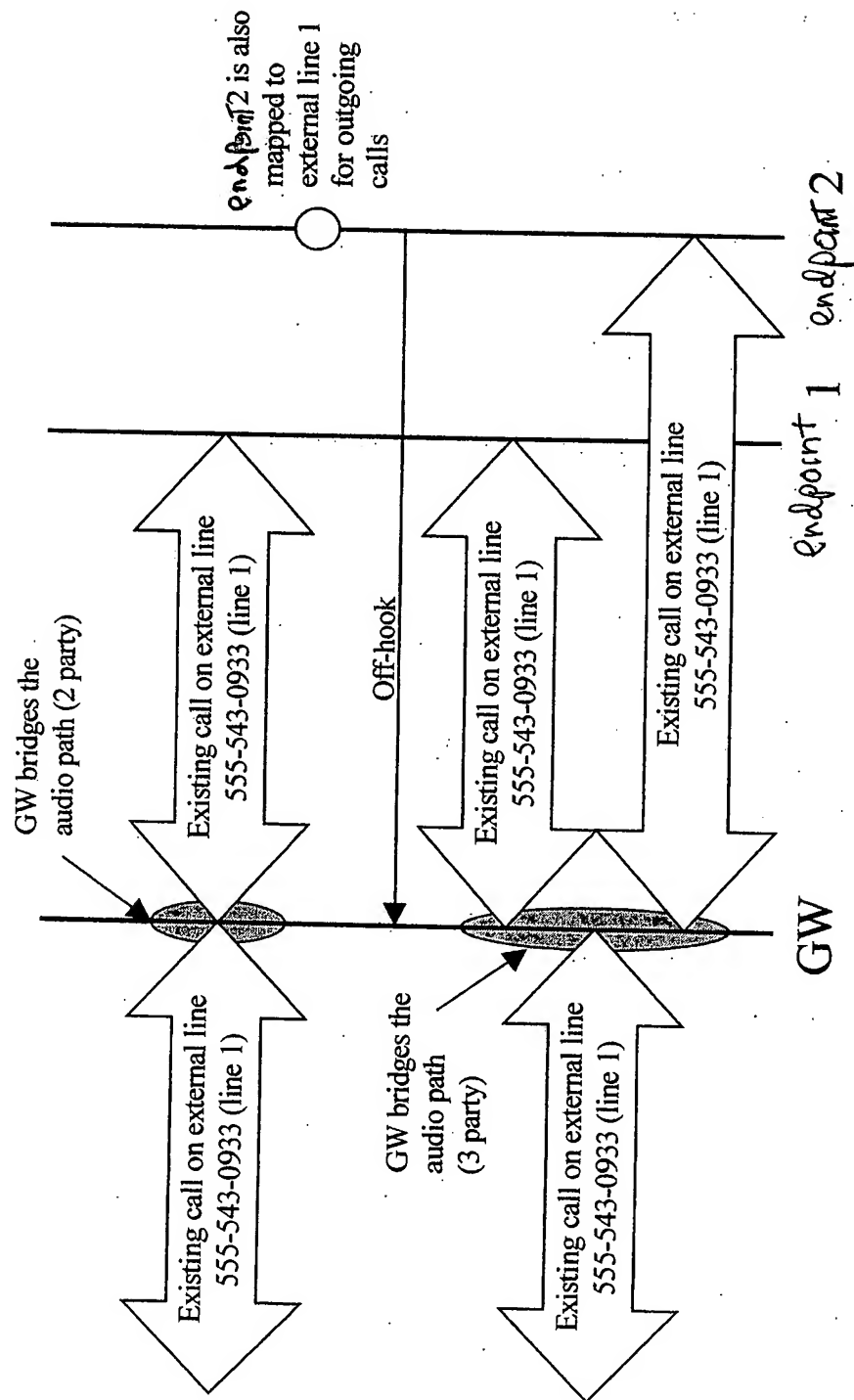


Fig. 2



3
H₂O

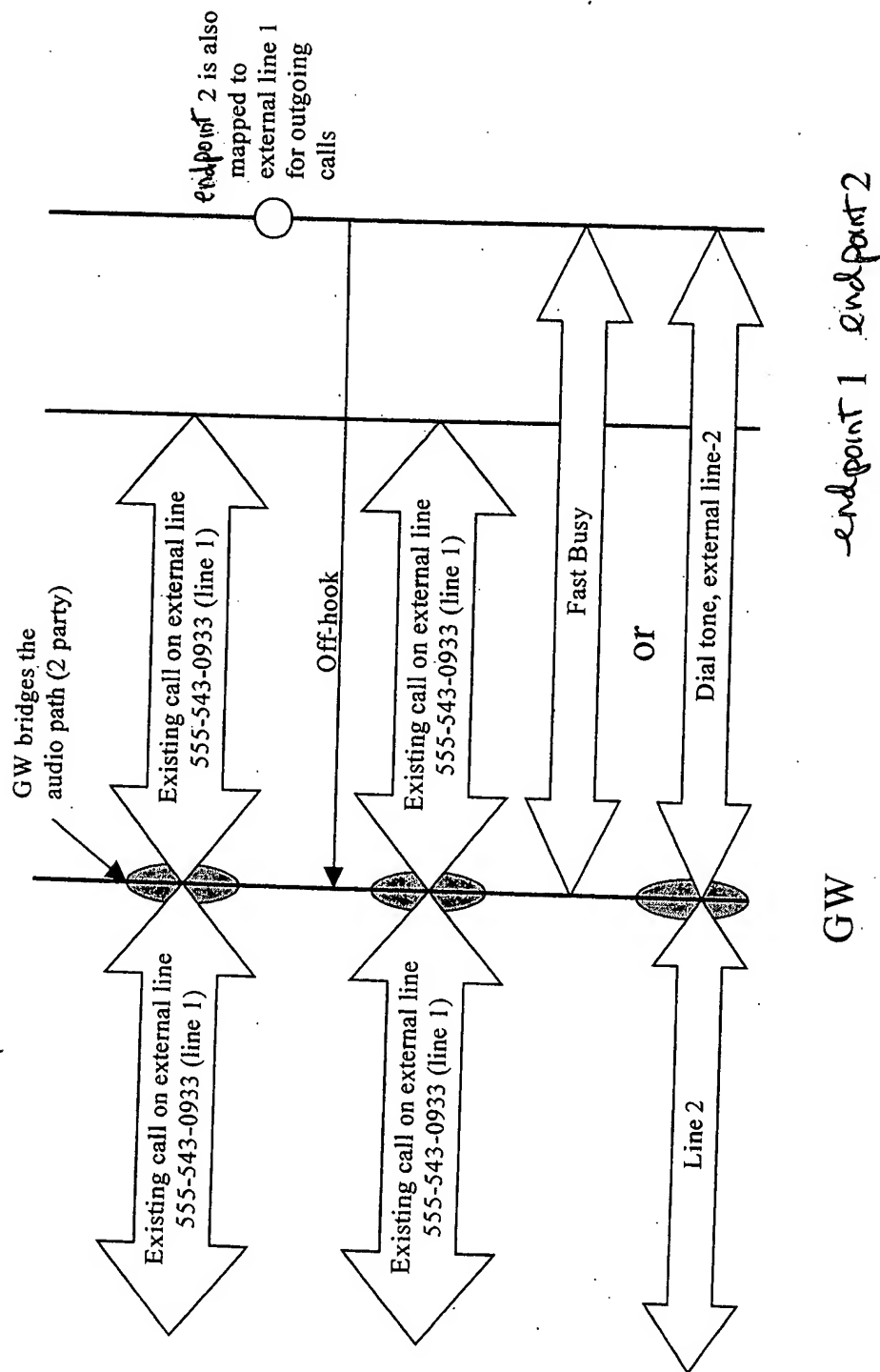


Fig. 4

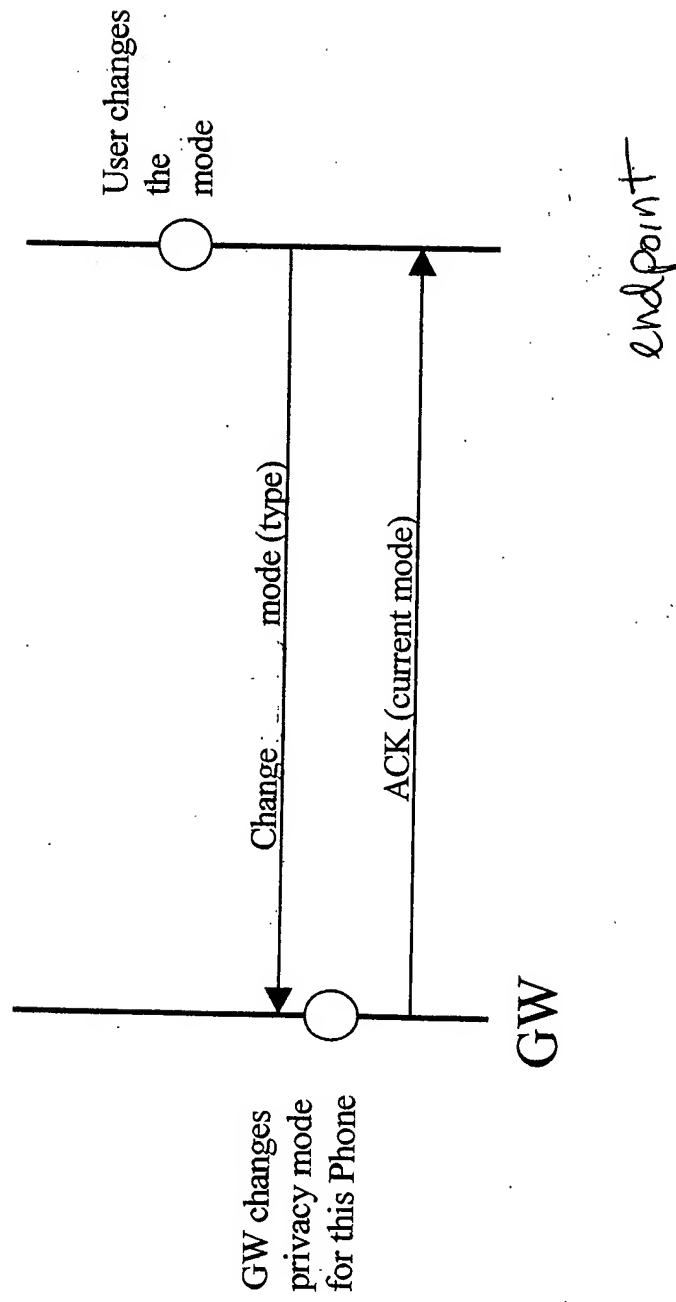


Fig. 5

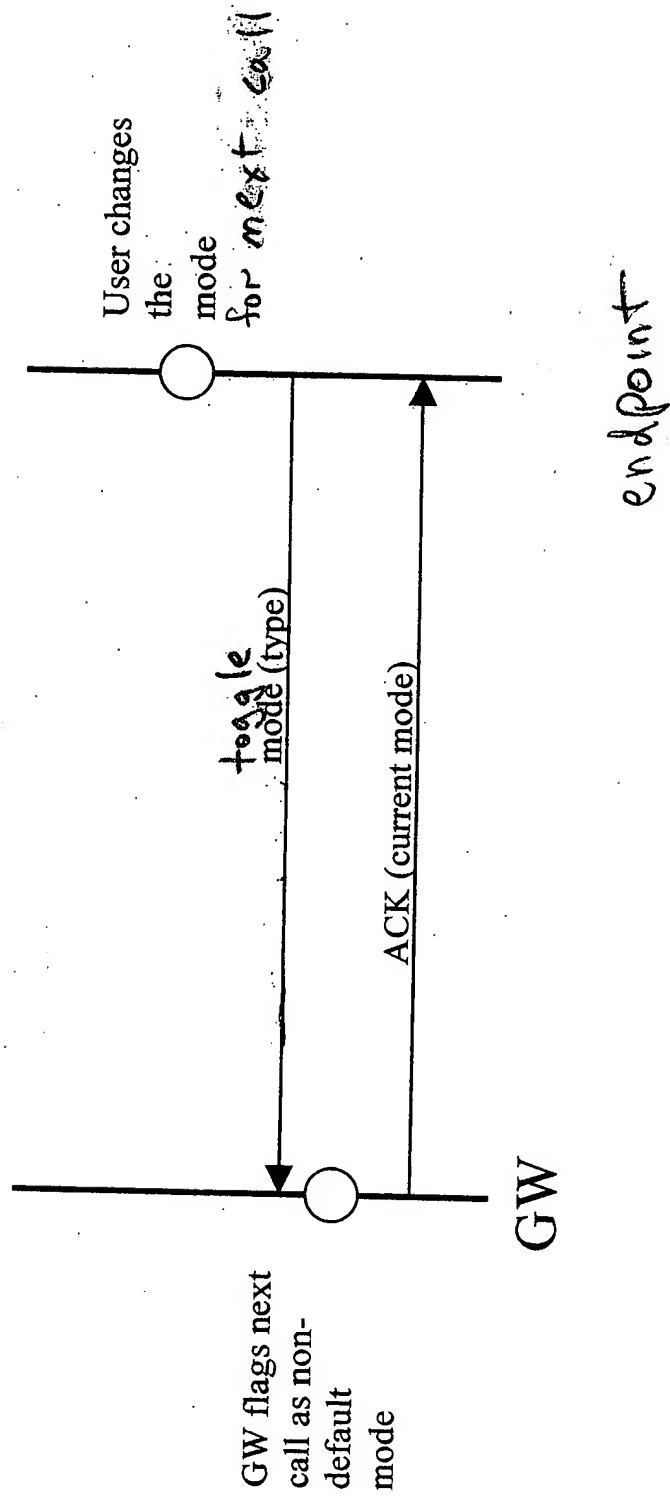
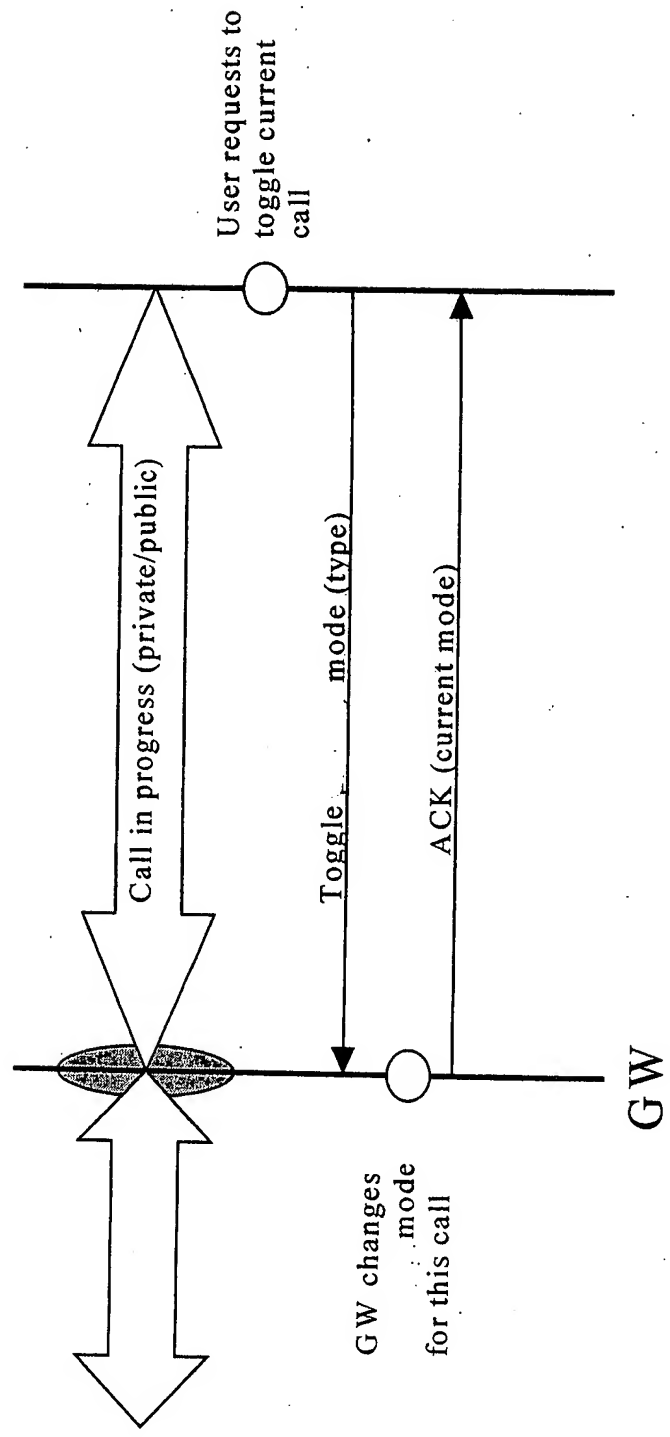


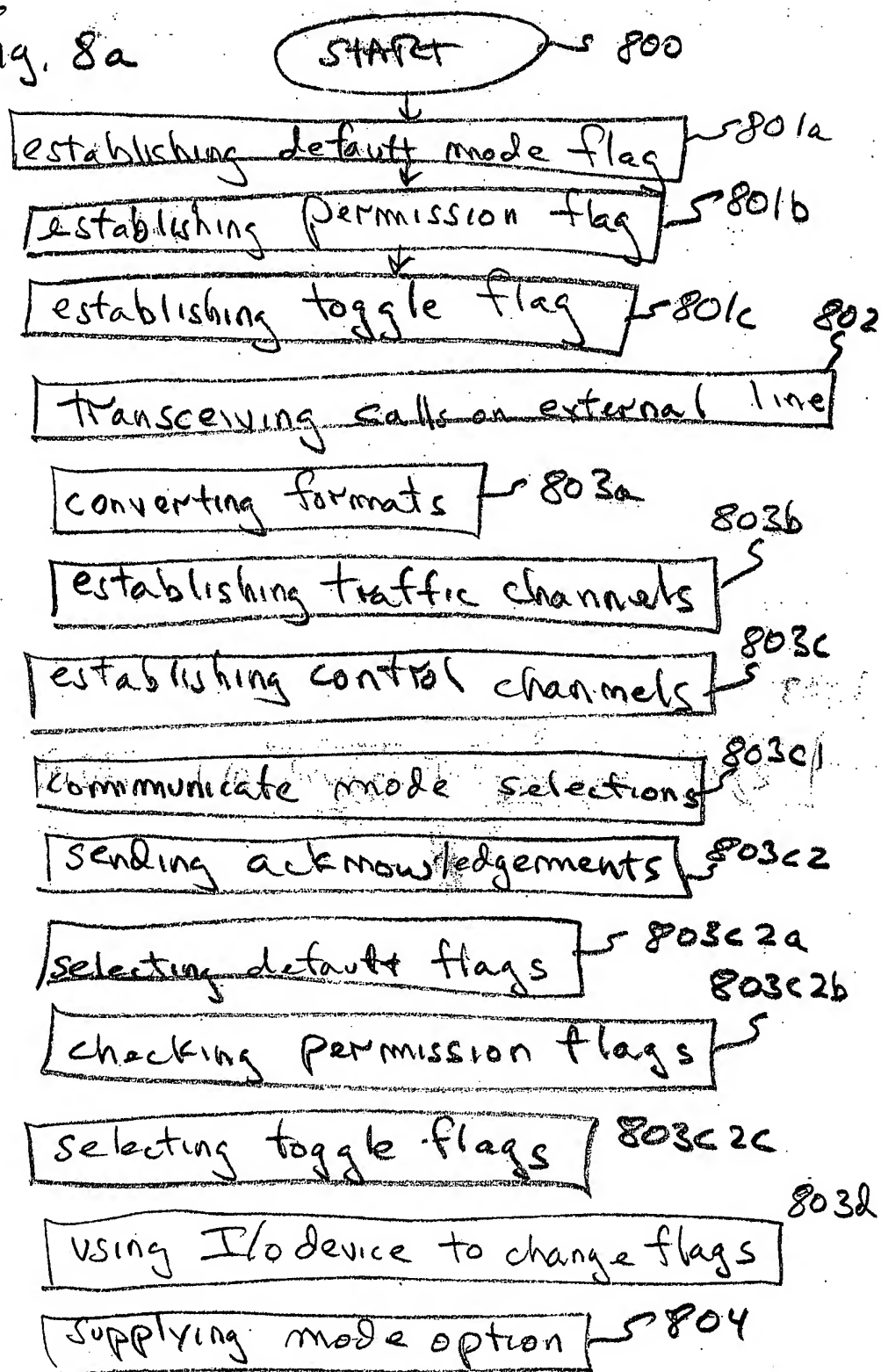
Fig. 6



endpoint

Fig. 7

Fig. 8a



to Fig 8b

ATTACHMENT C

[54] **MULTI USE TELEPHONE EXTENSION
 CONTROL CIRCUIT AND DEVICE
 PROVIDING LOCKOUT FOR PRIVACY**

[75] **Inventors:** Ashok L. Wahi, Somerville, N.J.;
 Priya Jakatdar, Branford, Conn.

[73] **Assignee:** Better Communications, Inc.,
 Somerville, N.J.

[21] **Appl. No.:** 141,106

[22] **Filed:** Jan. 5, 1988

[51] **Int. Cl.⁴** H04M 1/70

[52] **U.S. Cl.** 379/184; 379/168;
 379/194; 379/387

[58] **Field of Search** 379/161, 168, 169, 184,
 379/194, 199, 387; 340/825.5, 825.51

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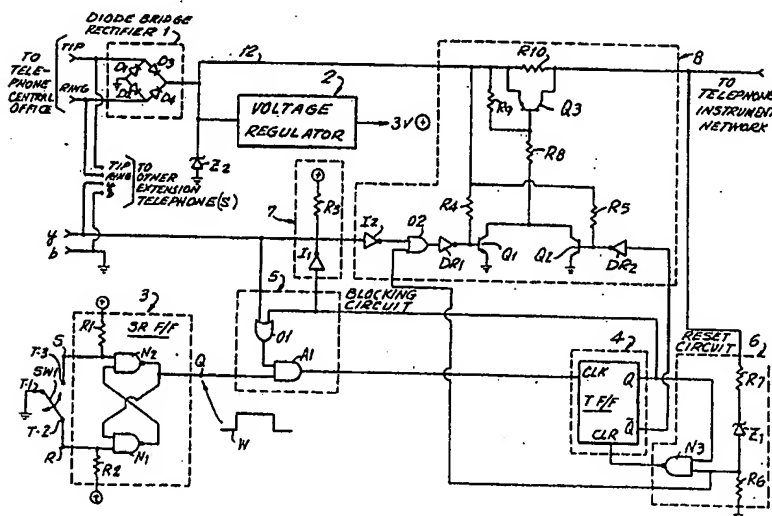
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Primary Examiner—Stafford D. Schreyer
Attorney, Agent, or Firm—Plottel & Roberts

[57] **ABSTRACT**

A circuit/device that can be designed into new telephone subsets as well as connected to existing telephones to prevent unwanted telephone extensions from interfering with the controlling extension. The device is operated by a single push-button located on certain or all extensions. When operated from a certain extension, it disconnects all other extensions that are fitted with the same device until such time that either the push-button at the controlling extension is operated again or the telephone is placed "on-hook." The present device has a very simple circuit located at each extension telephone and communicates over an unused yellow wire found in standard 4-wire telephone circuits.

21 Claims, 1 Drawing Sheet



ATTACHMENT D

(12) **United States Patent**
Kung et al.

(10) Patent No.: **US 6,252,952 B1**
 (45) Date of Patent: **Jun. 26, 2001**

(54) **PERSONAL USER NETWORK (CLOSED USER NETWORK) PUN/CUN**

(75) Inventors: **Fen-Chung Kung**, Bridgewater; **Jesse Eugene Russell**, Piscataway; **Hopeton Walker**, Haledon; **Spencer Wang**, Parsippany, all of NJ (US)

(73) Assignee: **AT&T Corp.**, New York, NY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/475,295**

(22) Filed: **Dec. 30, 1999**

(51) Int. Cl.⁷ **H04M 15/00**

(52) U.S. Cl. **379/114; 379/120; 379/144; 348/3; 348/14**

(58) Field of Search **379/111, 113, 379/114, 115, 121, 126, 127, 144, 90.01, 92.01, 93.02, 93.03, 118, 120; 348/3, 7, 14**

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Primary Examiner—Curtis Kuntz

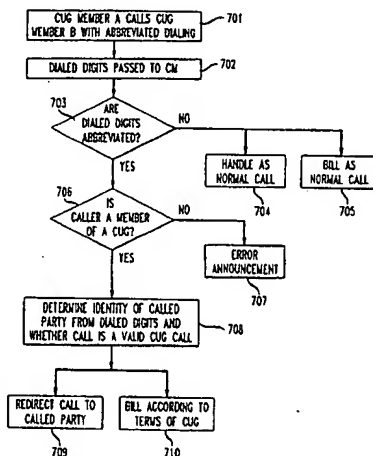
Assistant Examiner—Binh K. Tieu

(57)

ABSTRACT

An Internet Protocol Telephony Network and public switched telephone network, in which closed user groups may be dynamically defined and modified to take advantage of special billing within the closed user groups. Abbreviated dialing within the closed user groups may also be used to make dialing more convenient. The closed user groups may include members anywhere in a global network, and may take advantage of the special billing, regardless of whether the members are located in different states and/or countries.

7 Claims, 10 Drawing Sheets



ATTACHMENT E

(19) **United States**(12) **Patent Application Publication**
Weinman, JR.

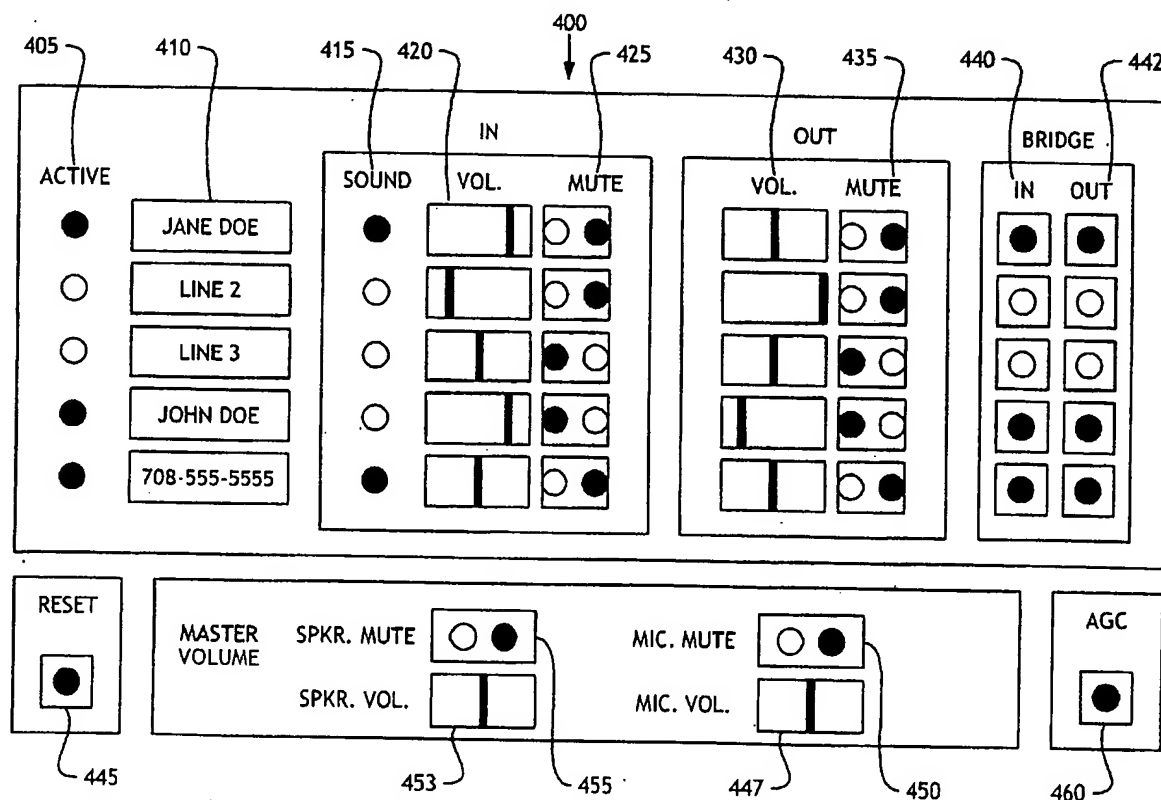
(10) Pub. No.: US 2002/0150220 A1

(43) Pub. Date: **Oct. 17, 2002**(54) **MULTI-LINE TELEPHONE WITH
INPUT/OUTPUT MIXING AND AUDIO
CONTROL****Publication Classification**(51) Int. Cl.⁷ H04M 11/00

(52) U.S. Cl. 379/88.13

(75) Inventor: **Joseph B. Weinman JR.**, Basking
Ridge, NJ (US)Correspondence Address:
**BANNER & WITCOFF LTD.,
ATTORNEYS FOR AT & T CORP
1001 G STREET, N.W.
ELEVENTH STREET
WASHINGTON, DC 20001-4597 (US)**(73) Assignee: **AT&T Corp.**, New York, NY(21) Appl. No.: **10/171,903**(22) Filed: **Jun. 14, 2002****Related U.S. Application Data**(62) Division of application No. 09/268,538, filed on Mar.
15, 1999.(60) Provisional application No. 60/114,555, filed on Dec.
31, 1998.(57) **ABSTRACT**

The present invention is a method and apparatus for selectively controlling the interconnectivity of two or more active telephone lines and/or one or more audio characteristics of each of the active telephone lines during a multi-line call. A bridge or a call connection control may be implemented to provide selective call connection for each active telephone call. The user may thereby control the interconnectivity of each party to the user and to the other parties to the conference or multi-line call. An audio controller may also be implemented within a multi-line telephone or at a telephony switch. The call connection control or the volume control may be implemented within the telephone network such as a switch or locally at the telephone unit. The user may provide the desired interconnectivity or volume parameters for the multi party call using a user interface. Optionally, the audio controller may process the audio signals of the conferenced telephone lines and intelligently adjust the audio characteristics of the audio signals.



ATTACHMENT F

DECLARATION OF GARY GASKILL UNDER 37 CFR §1.132

I, Gary Gaskill, hereby declare as follows:

1. My residence address is 4547 NW Rae Ct. Camas WA 98607.
2. Since April 1, 2001, I have been employed by Sharp Laboratories of America, Inc. ("SLA"), 5750 N.W. Pacific Rim Boulevard, Camas, Washington 98607. My title at SLA, since 2002, is Senior Research Engineer. My responsibilities include technical and market research in telephony and communications.
3. I have read the claims for the patent application in question, Mansfield et al., Serial Number 10/066,486 (the Applicant). I have read the relevant parts of the Office Action dated April 1, 2005, where claims 1-2, 4-11, 13-33, 35-36, and 39-54 have been rejected as obvious with respect to US Patent 4,899,372 (Wahi), US Patent 6,252,952 (Kung), and US Publication 2002/0150220 (Weinman). In summary, it is my opinion that the cited references do not make obvious amended claims 1-2, 4-11, 13-33, 35-36, and 39-54.
4. Wahi describes a POTS lockout system. In Wahi's system, all phones are electrically connected for the transmission of analog signals, and an analog circuit can be used to create electrical isolation between the phones and the external circuit (external lines). Unlike the

claimed invention gateway, Wahi's isolation circuitry is embedded in each individual telephone, not at a central device that bridges all internal lines to external lines. Because of the differences in structure, Wahi cannot perform the same functions as the claimed invention.

It can be seen from studying Wahi's Fig. 1, that by engaging the y/b lines, a user can disconnect extension phones. However, there is no selective control. The extension phones are either all disabled, or all enabled. Therefore, I do not consider Wahi an example of a telephone system that can selectively exclude, or make bridges to home network endpoints as a reaction to the accessed external telephone line. I am unaware of any telephone systems that permit the type of selective bridging described in the claimed invention. That is, with respect to claims 1 and 23, I am unaware of any telephone system that permits either a public or private mode option to be selected with respect to particular external telephone lines (telephone numbers). As explained in more detail below (Section 7), this means that public/privacy mode options can be selected for a particular endpoint with respect to multiple telephone numbers.

5. Kung's patent is primarily concerned with the behavior of network infrastructure and appropriate billing, as opposed to a residential gateway, or the behaviors between the residential gateway and the customer premise equipment (CPE) 102. For example, Figs 5 and 6 describe signaling and connection procedures from the residential gateway (BRG) 300, to the infrastructure part of the network. That is, the signaling described is between the gateway device and parts of the service provider's network. No signal diagrams explain signaling within the CPE. In contrast, the claimed invention deals with the signaling within a home (CPE), from the gateway to

the in-home devices (endpoints). The infrastructure covered in Kung, is out of scope of the claimed invention.

Fig. 3 of Kung describes the residential gateway. The general class of services are presented that may be offered in a residential gateway. In columns 18 and 19, Kung briefly notes that an Intercom Module (IM) may permit devices, such as phones, to be used as intercoms. A controller can be used to configure intercom paths. Further, the IM can be used to enable services such as extension transfer and call conferencing. However, Kung provides no details as to how these services are to be provided. For example, there are no diagrams such as Fig. 5 and 6 to describe the signaling with the CPE.

6. In summary, Kung describes a gateway that is able to mimic the performance of a conventional private branch exchange (PBX) telephone system, where a plurality of CPE telephones are connected to a plurality of external telephone lines. Typically, a PBX system is a subscriber-owned telecommunications exchange that has access to a public switched network. A PBX system, established in a business office for example, is able to transfer and conference calls between different extensions. However, even if Kung did describe how his residential gateway enables these PBX functions, these functions are very different from the public and privacy mode functions described in the claimed invention.

7. One major difference between Kung and the claimed invention is in how telephone numbers are assigned and handled. With PBX, each extension has either a separate direct dial number or an extension number. For example, to dial a particular business number serviced by a PBX system, a caller must dial a unique phone number (or extension), which is assigned to a particular phone, or a group of phones. In either case,

particular telephone lines, both internal and external to the PBX system, are not fixedly associated with any particular telephone number. For example, a PBX may have 30 available external lines and over 200 internal extensions. So whenever a caller serviced by the PBX dials an outside number, they are routed to next available outside line of those thirty, if one is available. Likewise, a person dialing a PBX-serviced number from outside the system is assigned one of the 200+ inside lines, if one is available.

The claimed invention Home network system is different. There is no addressable extension or telephone number associated with the endpoint that is "visible" to the external world. Rather, it is the external lines "delivering" the call that is associated with specific telephone numbers. For example, a Home network system may have two external lines, say XXX-XXX-8711 and 8712. Telephones are rung in response to the external telephone line on which a call is received. The gateway acts as an intermediary, and only rings endpoints that are associated with a specific outside line. So, the number 8711 may be set to only ring an office/den phone and a cordless kitchen phone. But, 8712 might ring every phone in the house. In a PBX system, the telephone numbers are associated with particular telephones. To reach the kitchen phone in a conventional system, the caller must know the phone number associated with that particular phone, say 8711. In the Applicant's invention, there is no such correlation between a particular phone and a particular phone number. In the Applicant's system a caller dials a phone number (selects an external line). However, he has no control over the endpoint(s) to which his call is bridged. Nor does the caller need to know that information. The bridging configurations between external lines and endpoints are made selectable in the Home Network environment.

This type of configuration permits the privacy and public mode options to be independently selected for each external telephone line, as recited in claim 1. The difference between the claimed invention and the PBX system is subtle, but powerful enough to enable unique privacy and public mode options.

The claimed invention privacy and public mode functions are enabled because the telephone numbers are associated with external lines, as opposed to internal phones. If number 8711 is set to private, and the office/den phone is initially picked up, then the cordless kitchen phone is blocked from picking up and eavesdropping (vice versa scenario applies). If the 8711 number is set to public mode, either phone may join the call, regardless of which phone initially takes the call. To the best of my knowledge, this a function that is unique to the claimed invention, based on a novel use of a gateway to identify a telephone number with an external line, instead of with a particular phone, or particular group of phones. These features are not described or suggested in any of the cited prior art patents.

8. In summary, I am unable to determine the signaling system that Kung uses to communicate between his residential gateway and the CPE telephones. As I mentioned above, he appears to be using his residential gateway to mimic conventional PBX functions. However, it is unnecessary to make that assumption. It is only necessary to assume that Kung associates telephone numbers with particular telephones, as is the standard behavior in any conventional POTS, PBX, Hunt group, digital, or gateway phone system that I am aware of. Alternately considered, no assumptions need be made. Since Kung does not describe the organization of telephone numbers on the basis of external lines, his gateway cannot enable the claimed privacy/public mode functions.

9. Weinman describes a bridge that is able to control the interconnectivity of telephones in a multi-line system on a call-by-call basis. This interconnectivity permits a user to control the audio characteristics (i.e., the volume) of individual lines. Weinman's system is used to connect multiple parties, simultaneously, in a conference call. Although Weinman describes interconnectivity with external lines, he does not describe a Home Network system. Thus, Weinman does not describe a bridge that is able to engage a predetermined interconnectivity in a Home Network system. Further, Weinman does not describe any kind of connectivity, inside or outside of a Home Network, which is determined by the telephone number being used. Thus, Weinman does not describe the claimed invention methodology of engaging either a privacy mode or public mode in response to a call being transceived in association with a particular telephone number.

10. I have been asked to consider whether the combination of the Wahi, Kung, and Weinman references make the claimed invention obvious, or suggests some sort of modification that makes the claimed invention obvious. The short answer is that they do not. Wahi's telephone system and switching mechanism clearly cannot enable and do not suggest the privacy/public mode functions of the claimed invention. The combination of Wahi/Kung/Weinman suggests to me a gateway-enabled lockout system, which additionally performs some transfer and conferencing functions. However as mentioned above, without the present invention organization of public and private operation modes against external telephone numbers, the claimed invention cannot be practiced. I see nothing in any of the references, or in the combination of references that suggests a system that could support the novel type of privacy/public mode functions that are described in the claimed invention.

11. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United State Code and that such willful, false statements may jeopardize the validity of the application or any patent issuing thereon.

4-27-2005

Date

Gary Gaskill

Gary Gaskill